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Editorial

Media & ICT in Teacher Education

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People's attitude towards digital devices is quite paradoxical. In some areas, they are considered absolutely irreplaceable. In other ones, they are seen as dangerous and must be avoided. Analogically, the school contexts reflect the same situation: media and ICTs, and in general, they are risky; therefore, on the one hand, digital devices are forbidden and their use is prohibited, and on the other hand, technology pervades almost all areas in society (Scherer, Siddiq & Tondeur, 2019) and the new generation of teachers faces considerable demands with respect to the use of new technologies in education (OECD, 2010). In other words, a generalized feeling considers technology as a danger for pupils' cognitive and social health but, at the same time, digital devices are around us and stay silently by us.

The role of scholars and researchers is as follows: Studying deeply the digital phenomena and identifying their potentialities and limits in a scientific way. Instead, the role of teachers is more difficult because they have to face the challenges offered by the digital situations and balance their actions between a proper use of technologies in the educational settings, supporting the pupils' cognitive and social growth and understanding the parents' fears, worries and doubts. Teachers walk along the border between a scientific level (the studies related to ICTs' use) and a practical one (caring the relationships with pupils' families).

Consequently, there is a further crucial role, located between the academic and the educational contexts, between universities and schools: the teacher educators. Teacher educators play a central and essential role in supporting the digital professional growth of future teachers.

«Teacher educators can be considered important stakeholders who prepare and motivate a new generation of teachers for teaching in today's classrooms. They can also play a key role in enhancing preservice teachers' technology-enhanced educational practices. Consequently, preparing future teachers to integrate technology in their educational practice is a challenge that teacher educators are increasingly confronted with (Liu, 2016; Ping, Schellings, & Beijaard, 2018)» (Tondeur et al., 2019, p. ??).

Therefore, the question becomes twofold. Former: Which are the main characteristics of teacher educators who can support and prepare trainee teachers for a valuable and effective use of technology at school? Latter: in what way, we should change the teacher education programmes to facilitate and promote this process?

Regarding the first question, «Foulger et al. (2013) identified 12 Teacher Educator Technology Competencies (TETCs) and defined the knowledge, skills and attitudes teacher educators need in preparing preservice teachers for teaching within technology-enhanced learning environments. Some examples of the competency areas included: aligning content with pedagogical approaches and technologies, modeling the use of online and blended learning methods and strategies, guiding the ethical and responsible use of technologies and engaging in leadership for using technology (Foulger et al., 2013, p. 432). In another review, Uerz et al. (2018) identified four domains of teacher educator competencies in preparing preservice teachers for effective technology use in their future classrooms: "technology competences, competences in pedagogical and educational use of technology, beliefs about teaching and learning, and competences in innovation and professional learning" (p. 21)» (Tondeur et al., 2019, p. ??).

Concerning the teacher education curricula, the question is complex because it implies many organizational factors combining several needs, coming from different areas. Anyhow, it is clear that researches and studies show how the quantity and quality of pre-service technology experiences included in their teacher education programmes influence the adoption of technology by the new teachers (Tondeur et al., 2012; Agyei & Voogt, 2011; Drent & Meelissen, 2008).

In addition, the problem is that «a gap exists between what pre-service teachers are taught in their courses and how teachers use technology in a real classroom (Ottenbreit-Leftwich, Glazewski, Newby, & Ertmer, 2010; Pope, Hare, & Howard, 2002)» (Tondeur et al., 2012, p. 134) because «pre-service teacher education should not only focus on how to use technology, but also how technology can be used for teaching and learning» (Tondeur et al., 2012, p. 135).

Tondeur et al. (2012) developed an interpretive strategy to reach a model for preparing trainee teacher for technology use. Fig. 1 shows such model elaborated through a Synthesize Qualitative Data (SQD) in the field of education.

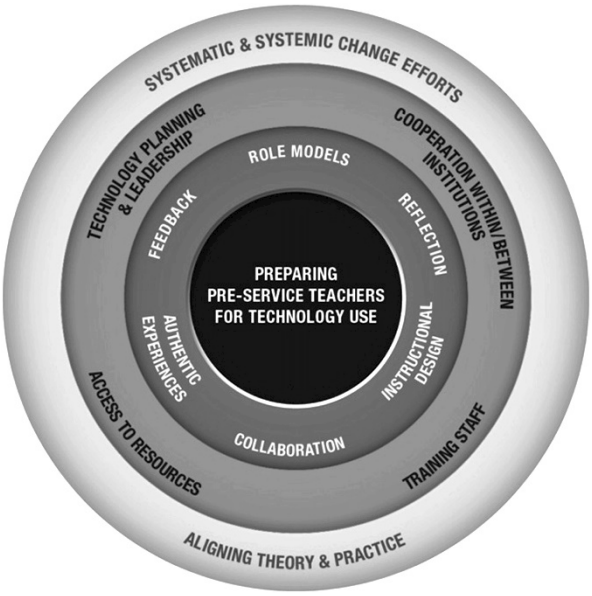

Fig. 1 SQD Model to prepare pre-service teachers for technology use (Tondeur et al., 2012, p. 141)

As the reader can see, the model provides one inner circle composed of six main themes: using teacher educators as role models; reflecting on attitudes about the role of technology in education; learning technology by design; collaborating with peers; scaffolding authentic technology experiences; moving from traditional assessment to continuous feedback. Then, there are further 6 themes related to the institutional level, located in the second and third circle.

In this editorial, I cannot go into the details and explain deeply each point but it is important to underline that the role of "Media & ICT in Teacher Education" (topic of this special issue) is not limited to the technology use but it involves the entire school life, from the classroom to the institutional and administrative levels, towards the innovation of learning environments, in general. Therefore, the universities, through their teacher education programmes, and the schools, during their everyday activities, should face the challenges posed by the digital devices.

Technologies are invasive. They pervade every moment of our lives. Teachers and teacher educators must look into the eyes of technologies and understand the best ways to identify and exploit the affordances of digital devices in a deep educational way.

Valtonen et al. (2019) affirmed that «ICT is part of the everyday world of today's youth and pre-service teachers. [] According to Sadaf, Newby, and Ertmer (2012), today's pre-service teachers have rather positive attitudes in general concerning the possibilities of ICT in education, still when it comes to concrete work, that is, actually using ICT in the classroom, attitudes are more reserved. In addition, based on a review by Brown and Englehardt (2017), it seems that pre-service teachers are often rather uncomfortable with integrating technology into teaching. This poses challenges for teacher education and according to Kirschner and Selinger (2003), teachers' inadequate skills and expertise are the bottleneck of taking advantage of ICT in education» (pp. 1-2).

It appears that a fracture exists between the use of technologies during the everyday life and their use in the educational settings. It is because, maybe, teachers and teacher educators feel unconsciously the same concern felt by the parents in using technologies with children and pupils.

For these reasons, it is even more important to explore the strategies to prepare future teachers for technology use. With "use", I mean the ability to make understandable the technologies, to make them a resource for deep and complex learning processes, to make them an instrument to read critically the society. In this way, I think that future teachers can have the opportunity to enlarge their learning environments through the digital and mobile devices which are able to break the school's walls down and open the school (and the university) to the everyday challenges.

In this way, I think that we should follow the suggestions made by the internationalization processes, supporting the opportunities offered by the virtual exchanges to improve our teacher education curricula (O'Dowd, 2018) for both trainee teachers and in-service teachers.

The last suggestion is reserved to the European Framework for the Digital Competence of Educators (DigCompEdu - https://ec.europa.eu/jrc/en/digcompedu). We know that it is representing the highest and deepest scientific attempt to identify the necessary competences for educators and teachers at all levels. Probably, those responsible for teacher education curricula and policy should take it into account to set up programmes more and more meaningful for teachers who will have to face more and more demanding challenges. For that, it is essential to give the future teachers solid and strong methodological approaches to face technologies. Maybe, technologies will change in the few next years, but the teachers will be able to understand the new roads to be followed or, even, create new roads.

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